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THE OUTLOOK FOR AMERICAN STATISTICS.*

BY WALTER F. WILLCOX.

This anniversary season, when nine organizations engaged in studying diverse aspects of man's social life are gathered at the metropolis of America for fraternal coöperation and mutual inspiration, naturally invites attention to the field and the outlook of the several societies. Statistics as a subject, however, is larger and more impersonal than the association created to develop it and thus a better theme for our annual reunion.

But why *American* statistics? Because statistics, like history and unlike economics or sociology, invites or demands a national rather than an international or universal treatment. Statistics is connected with and dependent upon the state, not merely by derivation of the word and history of the thing, but also by a rigid necessity. The original statistical inquiries which have been made by private agencies are insignificant in comparison with those which have been organized by government. In this field the aim of private citizens must be almost confined to a further interpretation and utilization of official returns, with due regard to the probable error of the figures. The outlook for statistics, then, depends mainly upon the attitude of government towards the subject.

The first branch of statistical work to develop in the modern world was the statistics of deaths. A little later came that of births and of marriages. This branch of statistics, which in England is usually known as vital statistics but in France and other countries is more often termed demography, was established as a national system in England and Wales in 1837, and, although the historical connection has not been traced, there is little doubt that the establishment of the Eng-

* Presidential address delivered at a joint meeting of the American Social Science Association, the American Sociological Society and the American Statistical Association, New York City, December 27, 1909.

lish registration system in 1837 was an important influence leading to the organization of this society in 1839, twenty-six years before any other of the associations with which we meet today was founded, and to the centering of its interest from the start upon vital statistics. The origin of our society at the capital of New England is another evidence of the connection I am suggesting, for New England during more than half a century and until recent years has been the main American nursery of vital statistics. Demography is the oldest branch of statistics; it has developed to a comparatively exact and scientific system; its methods have been subjected to long and searching criticism; its results are more unquestionable, if not more important, than those reached in any other branch. Hence it is the natural and appropriate gateway through which to approach the larger field, and the theme may be narrowed for the present to the outlook for American vital statistics.

The influence of the frontier as a capital fact, perhaps the capital fact, in our national history is now recognized and accepted. The well-nigh insuperable obstacles to securing registration, even of deaths and much more of births and of marriages, in a population living under frontier conditions, or even in the settlements thinly spread over the face of the country for many hundreds of miles east of the frontier, have prevented the rise of an effective American demand for good systems of registration. This is illustrated by the difficulty in tracing the ancestry of the most distinguished American of the nineteenth century, Abraham Lincoln. His biographer tells us: "There are hundreds of families in the West bearing historic names and probably descended from well-known houses in the older states or in England, which, by passing through one or two generations of ancestors who could not read or write, have lost their continuity with the past as effectually as if a deluge had intervened."* The limitations suggested by this quotation have been even more effective as a bar to the development of public records of deaths, births, or marriages. Canada and South Africa likewise have had

* Nicolay and Hay, "Abraham Lincoln," Vol. I, p. 1.

little success in transplanting vital statistics from the mother country to the colony and, if the experience of Australia and New Zealand has been different, this must be ascribed in the main to the massing of the population of those colonies in large cities. We may even ask what evidence there is that the registration records for the rural population of Australia and New Zealand are entirely complete and accurate.

But the frontier has exerted a more subtle and pervasive influence in checking the development of American statistics. It has been productive of an individualism which asks only to be let alone, which favors a minimum of governmental investigation or regulation, and which is impatient of official interference. Have not this individualism and self-sufficiency been obstacles to the growth of that coöperative action and social control needed for the effective government of a city? If so, our imperfect success thus far in city government may be the obverse of our great success in developing and pushing westward the frontier under the practice of *laissez faire*.

For nearly twenty years the frontier has almost ceased to be a factor in American civilization. It was prophesied that "with the passing of the free lands a vast extension of the social tendency may be expected in America,"* and the prophecy has come true. The part of this movement with which we are now concerned is its influence upon the progress and the future of American demography. Probably the present generation has seen a more rapid advance in vital statistics than any preceding one. A survey of the progress will establish this assertion beyond question.

In 1880 records of *deaths* based on an effective system were obtained from about one sixth of the population; in 1909 they were obtained from fully five ninths. If the extension during the next generation shall be equally rapid, the first half of the twentieth century will see an effective system established in every state. There is ground for being even more sanguine, for believing that the movement, far from being retarded, will accelerate. Each state added to the registration area re-enforces the pressure already exerted upon the remainder by

* F. J. Turner, "The Frontier in American History."

the recommendation of Congress, the tactful but persistent urgency of the Census Bureau, and the example of the eighteen states already included. And, in fact, the extension of the registration area during the last four years has been greater than during any preceding decade.

The registration of *births* is not yet on a satisfactory footing, and, until the system of recording deaths had been developed in many cities and states, the federal government delayed to act under the discretionary power given it by Congress and begin a campaign for the registration of births. I understand that the preliminary steps in this direction are now being taken.

It might be argued that the main influence at work in developing the registration of deaths has been the stimulus and guidance furnished by the Census Bureau, and, in support of this view, is the seemingly stagnant condition of birth statistics while death records have been extending. But with that opinion I cannot agree. Birth statistics have not failed to develop; on the contrary a careful examination, such as has never yet been made and as would not be appropriate to this occasion, would certainly show that the births which now escape registration are relatively much fewer than they were in 1880. For example, Maine, New York, Pennsylvania, the District of Columbia, Wisconsin and California, embracing about one fourth of the population of the country, had no state records of births in 1880 and have them at the present time. No doubt some cities in these states, like New York City, had birth records after a fashion as early as 1880, yet even those have since become far more nearly complete. It was not until 1891 that the annual number of recorded births in this city exceeded the number of deaths.

Regarding the statistics of *marriages* we have fuller and more conclusive evidence. The federal government has made two inquiries into this subject. In 1889, when the first report was published, less than one half of the states had any provision for state registration of marriages, and in many of these the records were most unsatisfactory. In many other states marriages were recorded in each county, but for only about

two thirds of the counties did any such records exist, either at the county seat or at the state capital. At the present time marriage records exist in more than 97 per cent. of the counties, and three fifths of those which lack them are in South Carolina, the one state not requiring a marriage license and making no record of a marriage. Apparently the extension of the registration of marriages, a field in which the federal government has exerted almost no influence, has been as great as the extension of the registration of deaths.

Regarding *divorce* it need only be said that this is the one branch of vital statistics in which the United States has made contributions of capital importance, when judged by international standards. The most important sources of statistical information about divorce throughout the world are the two reports of the federal government covering together the forty years between 1867 and 1906.

The outlook for American vital statistics then appears hopeful. The next generation may and should do much to elevate it to the level of the best work done in older and more densely settled countries.

The recent rapid development of the public health movement has reënforced the demand for competent demographers and so for an adequate training in vital statistics. Our states and cities might do much more for public health than they are doing if they could find more readily men able to show statistically the need for and the success of remedial measures. The medical schools, to which we naturally look, give little, if any, training in demography and cannot because their curricula are badly overcrowded. A suggestion may be found in British experience. In that country a degree of B. S. in public health, or a diploma in public health, is given to a doctor who pursues after graduation a prescribed course in public health, including vital statistics. This example could be followed by our medical schools, only if the position of health officer or registrar were to be filled by the best qualified person, whatever his residence at the time of appointment, and carried a salary on which the appointee could live.

It would be possible to review the other important branches

of American statistical work and to show that in most, if not in all, of them interest has been growing during the last few years. The development of demands for an effective and detailed supervision of public service corporations, for a dispassionate and expert investigation of the industrial and commercial conditions with which a federal tariff law has to deal, for carefully planned budgets, federal, state and municipal, may be mentioned merely as examples of other directions in which the call for better statistics is now imperative. To develop that argument this afternoon would require too much time. Allow me, then, if you please, to assume that such a growth has occurred, is likely to continue and deserves encouragement and support.

How, then, may it be expedited? If American statistics are to progress more rapidly in the future than they have in the past there is urgent need for a larger number of men qualified by nature and training for a statistical career. Many of those now engaged in it have obtained all their knowledge in the office. Some have been drafted in from other occupations; others have risen through the successive grades of the service; few knew anything of statistics before their appointment to a statistical position.

The work of a statistician is not yet established in this country as a profession and hardly as a career. Evidence of this may be drawn from the position of superintendent or director of the census, no doubt our most conspicuous statistical office. Since 1850 there have been eight superintendents or directors, the average length of whose service has been four and one half years. I have compared the careers of the seven persons most conspicuously identified with recent census work in England, France, Germany, Prussia, Italy, Austria and Russia. The average duration of their official life and their work in statistics was twenty-six years, nearly six times that in this country. The most notable exception to the rule that the official lifetime of an American statistician is very short is in the career of our late honored president, Carroll D. Wright, who was in the harness at Boston or Washington for

thirty-two years. *Vires acquirit eundo*. May there be many such instances in the years before us!

How should statisticians be trained? Some say the office is the only good training school; others demand a preliminary course of study at an educational institution. No doubt each method can produce good men, but the best results in most cases are secured by a combination of the two sorts of training.

There are parts of statistics which can be taught in a university far better than in an office. Such are its history and theory, the presentation of its main results as a coherent system of facts and principles, the comparison and criticism of methods and possibly in some cases the interpretation of conclusions.

There is another and less obvious aid derived from the academic teaching of statistics. An office with a large clerical force is seldom so organized as to enable its heads to select quickly and accurately the clerks who best deserve promotion to responsible positions. Most new clerks are assigned duties of a routine character, which do not quickly reveal a man's quality. It is one important function of a university to evaluate its students, not merely or mainly by the crude test of marks, but rather by developing in the teachers a sympathetic and yet critical estimate of each student's power and promise. This estimate helps to direct into the statistical field some who have a native capacity for and interest in it and helps also to hasten the passage of such students through the deadening early stages of office life.

During the last few years, notwithstanding an increase in the public appreciation and demand for trained statisticians, there has been little addition to the amount or improvement in the quality of statistical education. If the fact were otherwise we might feel much more confident of the outlook for statistics. In my judgment the colleges and universities have not kept pace with the popular readjustment. No doubt the short supply of trained men has retarded the progress of the work.

Another serious obstacle to the rapid development of statistical work has been the lack of any national statistical cen-

ter, such as each great European country possesses at its capital. Years ago that position belonged probably to Boston; now it does not. If federal work in statistics continues to grow as it has done of recent years Washington will soon take, if indeed it has not already taken, the leading place. Whether or not our development shall make any one place, like Washington or New York, preëminent in the variety, importance and quality of its statistical work, there is surely need for continuing the education of statisticians in official life by providing a forum where they may meet and by mutual conference and friendly criticism may contribute to the progress of each other's work. European experience has found the great advantage of such conferences and since 1853, when the first international statistical congress assembled at Brussels, the number and variety of such meetings have slowly increased, barring the slight check after the war of 1870-'71. In the variety of its conditions and its problems this country is almost continental, and periodic conferences of statisticians within its limits are needed now and the need is likely to become imperative. How the need shall be met and whether this Association finds in it any duty and opportunity are questions I submit to its consideration.

Closely correlated with this but perhaps even stronger is the need for a center at which the producers and the critical consumers of statistics may meet and fraternize. There has long been some danger that these two groups would not work harmoniously in the common interest. Probably most of us have seen instances of the kind. While the danger is less than it was ten years or more ago, yet so long as the two groups keep at arm's length and fail to exchange experiences and opinions, the danger may revive, either with groups or with individuals. Here, too, may be a field for this association.

Our society is now seventy years of age and, with the exception of the Royal Statistical Society, it is, I believe, the oldest statistical organization in the world. The subjects with which it is especially concerned have developed but slowly in the United States, owing to conditions which are fast disappearing. Never has the growth of interest in statis-

tics and the demand for thorough and dispassionate statistical analysis and interpretation been so rapid. The most imperative need is for the recognition of statistics as a career or profession and for facilities whereby it may be adequately taught and effectively acquired. Notwithstanding this reservation, the outlook for American statistics is bright and encouraging.